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THE GROUSE

STRAWBERRY VALLEY



United States
Department of
Agriculture
Forest Service

Intermountain
Research Station



National Agricultural Library

Milo Burcham

Cock sage grouse perform one of the most dramatic pageants in nature during mating season when they inflate air sacs on their chests and strut about the lek, dancing and fighting in a traditional noisy ritual.

Just a few sage grouse cling to last remnants of their remaining habitat in Utah's Strawberry Valley. The once thriving population plummeted following the destruction of most of the bird's spring, summer, and fall cover and food supply. But today, land and wildlife managers are working with scientists to save the sage grouse.

The Uinta National Forest's Heber Ranger District, which manages the land; the Utah Division of Wildlife Resources, which manages the birds; and the Forest Service's Intermountain Research Station, which conducts scientific research to understand the bird's habitat, have joined together to protect the sage grouse and restore its environment. Where sagebrush and forbs (broadleafed herbs) were once killed with chemical sprays to increase grass for cattle forage, managers will plant sagebrush and forbs critical to the survival of sage grouse. They will restore springs and wet spots also critical to the birds.

Today only 9 percent of the 1939 population level remains in Strawberry Valley. In what was the first sage grouse study in North America, Lynn Griner, a graduate student from Utah State Agricultural College, now Utah



State University in Logan, determined that the 1939 population was close to 3,500 birds. The current population is less than 300.

During Griner's 3-year study that began in 1937, the pioneer wildlife biologist established for the first time that big sagebrush, forbs, and insects are important food for sage grouse. Today Utah Division of Wildlife Resources and Intermountain Station scientists study the sage grouse in Strawberry Valley to add new knowledge and understanding to the discoveries of the early research.

This publication helps visitors to Strawberry Valley appreciate the sage grouse and understand the habitat that it needs to survive.

Insects and forbs (broadleaf herbaceous plants) are important food for chick and juvenile sage grouse. Healthy big sagebrush communities have an abundance of wildflowers and the insects that live on the wildflowers. Wildflowers are adapted to natural ecosystem disturbances such as fire and can even increase in abundance after fire. But many years of grazing and herbicide spraying in the Strawberry Valley reduced the amount and variety of wildflowers, reducing the food supply for young sage grouse.



Vic Bradfield



Big sagebrush is extremely critical to sage grouse in the Strawberry Valley during deep winter snow when the birds depend on it almost exclusively for food. When there is enough sagebrush for food and cover sage grouse can even gain weight during the winter.

LIFE HISTORY

Sage grouse, often known as sage hens or sage chickens, are the largest of the North American grouse species. Mature males average about 6 pounds, but may weigh as much as 7 pounds. Females weigh about half as much as males. Sage grouse are one of several prairie grouse species that utilize a communal breeding ground or "lek" during the spring breeding



The cock's white neck feathers and inflated yellow eye combs combined with its posture and motions communicate to other cocks and hens.



Sage grouse show a strong preference to mate on historical leks or strutting grounds. They return to the same site every year even if it's covered with snow. Removal of all sagebrush around the strutting ground can destroy the lek and force the birds to move to a new area, reducing the total population of birds in the Strawberry Valley.



season. The mating dance of the male is spectacular and unique. The male selects and defends a territorial "booming" ground, on which it conducts a ritualistic display to attract females. Because of the male's spectacular display, the Lewis and Clark expedition, when it "discovered" the sage grouse above the headwaters of the Missouri River and on the plains of the Columbia River, referred to it as the "cock of the plains."

Sage grouse heavily depend on big sagebrush (*Artemisia tridentata*). Big sagebrush is by far their most important food source, as well as being essential for escaping, roosting, loafing, brooding, and nesting cover. In fact, sage grouse seldom are found far from big sagebrush.

About 40 to 50 percent of the summer diet of adult sage grouse consists of leaves and tender shoots of big sagebrush. This dependency upon sagebrush increases to about 85 percent during the spring, and to about 95 percent during the fall and winter. Big sagebrush appears to be good for the grouse, as they are one of only a few animals that gain weight during the winter.



Pete and Alice Bengeyfield

Mating activity usually begins just before dawn and continues into the early morning. Occasionally, cocks will strut during the evening and on some bright moonlit nights they may dance all night.

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If you are interested in the most recent research results and the sage grouse recovery plan request a free copy of Research Paper INT-430, "Sage Grouse Status and Recovery for Strawberry Valley, Utah," by Welch and others, from the Intermountain Research Station, 324 25th Street, Ogden, UT 84401.



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Diets of young sage grouse differ from those of adults. Studies conducted in the Strawberry Valley and elsewhere indicate that big sagebrush makes up about 25 percent of the June, 22 percent of the July, and 36 percent of the August diets of juvenile birds. After August, the diets of juvenile sage grouse become similar to those of adults. From hatching in the spring until fall, insects and forbs are very important in the diets of chicks and juveniles.

Sage grouse hens nest almost exclusively under big sagebrush plants. Hens often select plants with umbrella-like shapes. Nests usually are located under plants that are 16 to 31 inches high, and in areas with a 20 to 30 percent canopy cover of sagebrush.

The quantity and quality of big sagebrush is important near sage grouse mating grounds—the leks. Physical characteristics of sage grouse leks vary greatly. They usually are bare openings in sagebrush, which provide an area for males to display, but are almost always surrounded by some type of sagebrush cover.

IMPACTS OF PAST MANAGEMENT

In the early 1900's, the Bureau of Reclamation constructed a dam that formed Strawberry Reservoir. Lands that surrounded the reservoir and were not flooded came under the management of a private organization, even though these lands were owned by the public. The private organization managed these lands primarily for cattle and sheep production.

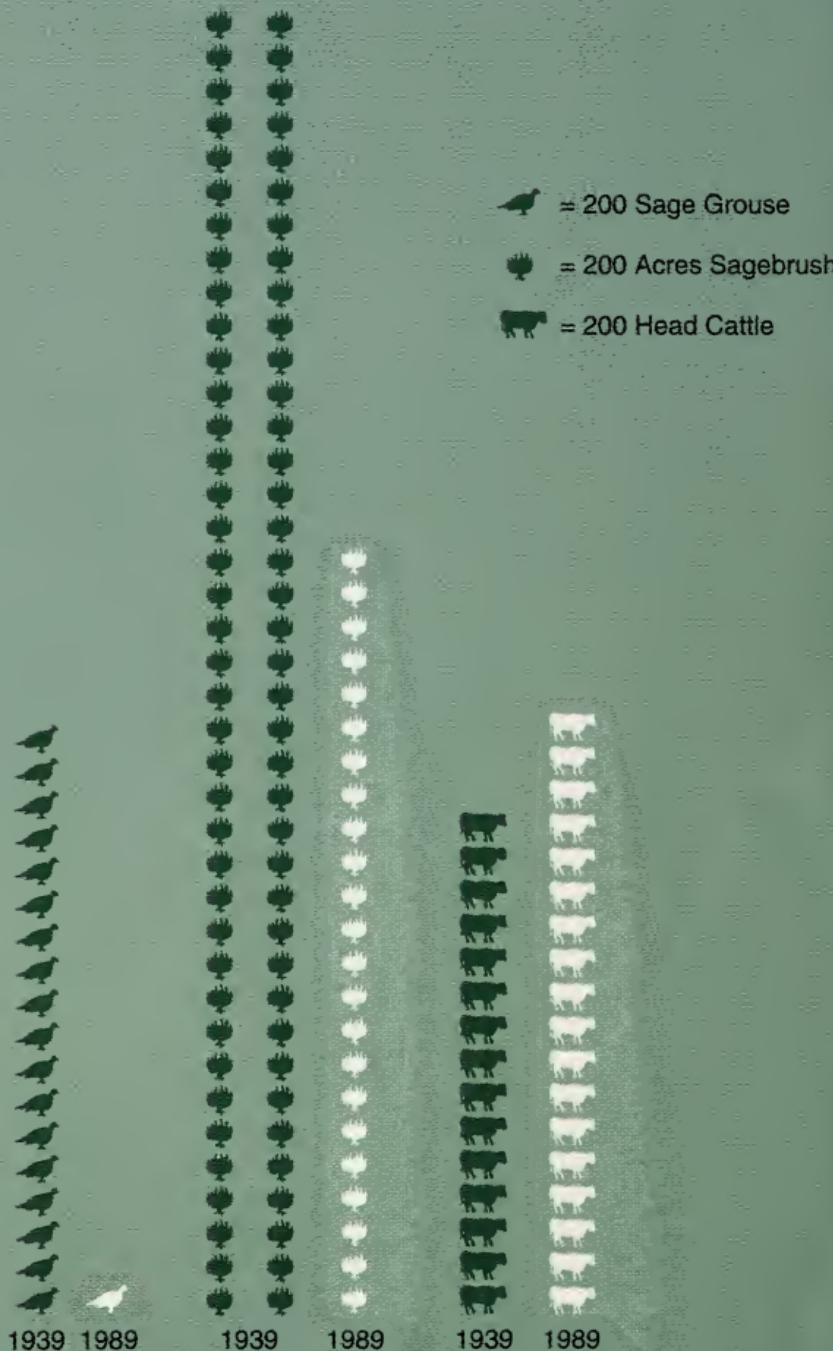
In the early 1930's, a Federal wildlife refuge was established on these lands to aid sage grouse and migratory waterfowl. Later, this refuge was abolished and the lands became grazing lands.

Beginning in the 1950's and continuing until the late 1980's, herbicides such as 2,4-D were routinely used to kill big sagebrush, willows, and other woody plants over large parts of the Strawberry Valley. The immediate objective was to increase grass production for the benefit of livestock. The herbicides killed not only sagebrush but also forbs that the grouse ate directly and indirectly by feeding on insects that also feed on the forbs. Results were that sage grouse populations declined. In 1989 following Congressional action, much of the Strawberry Valley was given National Forest status and became part of the Heber Ranger District of the Uinta National Forest.

National Forest management emphasizes restoring natural ecosystem functions and processes, and bringing back a greater diversity of plants and animals. With the return of big sagebrush and a greater variety of forbs and insects the sage grouse has a much brighter future.

Comparison of Populations

Before Killing Brush (1939) and After Killing Brush (1989)



By 1989, 70 percent of the sagebrush-covered rangeland was converted to grassland range. The grazing capacity for cattle was increased by 600 head, but the cost to sage grouse and other species in the sagebrush community was high.